RENEWABLE PORTFOLIO STANDARD AND SYSTEM BENEFITS FUND:

Opening Markets to Clean, Domestic Energy Sources

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Environmental and Energy Study Institute

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The Environmental and Energy Study Institute sponsored a Congressional briefing on two federal legislative proposals: the Renewable Portfolio Standard (RPS) and the System Benefits Fund (SBF). These complementary energy policies are designed to help level the playing field and encourage investments in new renewable energy resources and energy efficiency technologies. Developing clean energy technologies stabilizes and diversifies the nation's domestic energy resources, improves electricity reliability, decreases pollution and greenhouse gas emissions, and promotes rural economic development. A federal Renewable Portfolio Standard and System Benefits Fund provide significant opportunities for the nation to move toward a more sustainable and secure energy future fueled by abundant, domestic, and clean energy sources, as well as fostering great gains that can be made through improved energy efficiency.

> *"A national System Benefits Fund would result in substantial economic savings to consumers and reductions in energy use, peak demand and emissions."*
> *- Steve Nadel, American Council for an Energy-Efficient Economy*

SYSTEM BENEFITS FUND

System Benefits Funds (SBF) typically support four types of services previously provided by electric utilities: energy efficiency improvements, renewable energy development, low-income energy assistance, and clean energy research and development. According to Steve Nadel, executive director of the American Council for an Energy-Efficient Economy (ACEEE), utility restructuring caused investments in energy efficiency, renewable energy, and low-income assistance to plummet. Spending on those utility programs has dropped almost 50 percent, and energy savings and peak demand savings have declined. SBFs were created to make those investments in renewable energy and energy efficiency through monies collected by a small wires charge that is competitively neutral among utilities.

Twenty states, including the District of Columbia, have adopted some type of SBF. These states are mainly located in the East, Southwest, and on the West Coast. The wires charge varies for each state – Connecticut's charge is four mills (one mill = one tenth of one cent) per kilowatt-hour, while Texas charges only .1 mill per kilowatt-hour. The average charge for the twenty states is 1.74 mills per kilowatt-hour. According to Nadel, the majority of the 20 states have strong programs, but many of the smaller programs could use substantial expansion.

The New York Energy $mart Program, which is run by the New York State Energy Research and Development Authority (NYSERDA), maintains a 1.4 year payback on SBF expenditures and leverages their investments – every one dollar from the SBF is leveraged by three dollars. During the first year of California's program, the state saved 156 megawatts of electricity with net benefits of $140 million. California is now saving thousands of kilowatts every year. Massachusetts' program also experienced promising results by reducing participating customer electricity use by 6 to 13 percent in the first year and benefiting the consumer over twice the cost of the program.

PANELISTS

Steve Nadel
Executive Director, American Council for an Energy-Efficient Economy

Alan Nogee
Director, Energy Program, Union of Concerned Scientists

Mike Sloan
President, Virtus Energy Research Associates, Inc.

Peter Winokur
Legislative Fellow, Office of Senator Harry Reid (D-NV)

Federal Legislation

System Benefits Fund proposals have been introduced in three federal legislative bills: Senator Bingaman's comprehensive energy legislation (S.597), Senator Jeffords' Renewable Energy and Energy Efficiency Investment Act of 2001 (S.1333), and Representative Frank Pallone's House companion bill to S.1333 (H.R. 3037). ACEEE concludes that under any of the proposals a national SBF could leverage substantial state and private investment. A national SBF would result in substantial economic savings to consumers and reductions in energy use, peak demand and various pollutants.

Senator Bingaman (D-NM), chair of the Senate Energy and Natural Resources Committee, introduced a proposal that establishes a SBF until 2015. The SBF is supported by a one mill per kilowatt-hour charge and provides funding to all states based on the number of low-income households and the average household electric bill. The activities eligible for funding under Bingaman's proposal include energy efficiency improvements, load management, renewable energy development, low-income energy assistance, rural electrification and greenhouse gas reduction.

The second SBF proposal is included in the Renewable Energy and Energy Efficiency Investment Act of 2001, which is sponsored in the Senate by Senators Jeffords (I-VT), Snowe (R-ME), Schumer (D-NY), Kerry (D-MA), Lieberman (D-CT) and Feinstein (D-CA), and in the House by Representatives Pallone (D-NJ), William Clay (D-MO), Anna Eshoo (D-CA), Bob Filner (D-CA), and Grace Napolitano (D-CA). Jeffords' proposal establishes a national fund to match state SBFs up to two mills per kilowatt-hour. According to Nadel, Jeffords' proposal provides a significant carrot to states to undertake SBF programs. Eligible activities include energy efficiency improvements, renewable energy development, low-income energy assistance, and clean energy research and development. Jeffords' SBF would be separate from the Federal budget and Congressional appropriations process and administered by an independent entity similar to the provision used to administer the Universal Fund under the Telecommunications Act. Nadel points out that neither Jeffords' nor Bingaman's proposals are trying to establish a large national bureaucracy, but are simply a mechanism to help pass these programs through to the states.

ACEEE analyzed several options for enacting federal SBF legislation: Bingaman's proposal, Jeffords' proposal, an enhanced Bingaman proposal, and a hybrid proposal developed from the Bingaman and Jeffords proposals. According to Nadel, Bingaman's proposal is very broad and could encourage many free riders to take advantage of the program. The Jeffords proposal would achieve the largest efficiency savings, while Bingaman's proposal would have the smallest efficiency savings. The enhanced Bingaman SBF, which eliminates load management, limits greenhouse gas mitigation expenditures, adds kilowatt-hour sales to the allocation formula, and extends the SBF to fifteen years, would nearly double energy savings and improvements when compared to his original proposal. According to Nadel, the hybrid approach utilizes the best of both proposals, achieving two-thirds of the benefits of Jeffords' proposal, but better allocating those benefits to all of the states. Nadel points out that both the hybrid and Bingaman approach result in a decrease of efficiency benefits after 15 years, while energy efficiency benefits under Jeffords' proposal would continue to grow. (Please refer to Figure 1.)

Figure 1

Federal SBF Legislative Options

Option =>		Bingaman	Jeffords	Bingaman enhanced	Hybrid
National expenditures, NPV 2003-2020*		$27 billion	$39 billion	$27 billion	$47 billion
Efficiency investment leveraged, NPV from 2003-2020		$19 billion	$122 billion	$32 billion	$99 billion
Energy savings (quads):	2010	0.43	2.36	0.68	2.07
	2020	0.45	4.41	0.85	2.76
Peak demand reductions (MW):	2010	15,000**	81,000	23,000	71,000
	2020	16,000**	161,000	31,000	101,000
Carbon emission reductions (MMT):	2010	10	54	16	47
	2020	10	96	18	60
Value of energy bill savings, NPV from expenditures thru 2020		$28 billion	$189 billion	$49 billion	$149 billion
Net consumer benefits from expenditures thru 2020 (NPV)		$10 billion	$68 billion	$16 billion	$50 billion
Benefit-cost ratio		1.52	1.56	1.51	1.50

* National expenditures row includes expenditures for efficiency and other eligible activities. All other rows in this table just cover efficiency and thus amounts in the first row are not directly comparable to the other rows.
** Some additional peak demand savings will occur due to load management programs but are not included in these figures.
Note: Figures are in 1999 $, NPV figures use a 5% real discount rate.

Since this briefing, major energy legislation was introduced, but did not include a federal System Benefits Fund. Senators Thomas Daschle and Bingaman introduced the Energy Policy Act of 2002 (S. 1766), and have tentatively scheduled floor action for before the President's Day recess. On the House side, Representative Joe Barton, chairman of the House Energy and Commerce Committee's Subcommittee on Energy and Air Quality, introduced the Electric Supply and Transmission Act (H.R. 3406), and plans to hold a subcommittee markup in February 2002. Complicating the issues somewhat, the Congressional Budget Office has ruled a System Benefits Fund to be a tax, which would require SBF legislation to go through the tax-writing committees. Clean energy advocates maintain that the SBF's charge is a user fee (which can be acted upon by the energy committees) and not a tax.

RENEWABLE PORTFOLIO STANDARD

A Renewable Portfolio Standard (RPS) is a flexible, market based mechanism to expand the renewable energy market. It requires retail electric suppliers to obtain a minimum percentage of their electricity from renewable energy resources. According to Alan Nogee, energy program director for the Union of Concerned Scientists, developing renewable energy diversifies the nation's energy system, reduces fuel price volatility, and can even reduce the cost of fossil fuels through competition with renewable energy resources. Utilizing more renewable energy not only preserves resources for future generations, but also reduces pollution

"A federal Renewable Portfolio Standard is important because renewables provide important national environmental, diversity, employment and security benefits."
-Alan Nogee, Union of Concerned Scientists

and greenhouse gas emissions, and can lower the cost of emissions caps. Renewable energy technologies create new job opportunities in rural areas and create additional export opportunities, stated Nogee. In addition, renewable energy technologies provide the nation with a more secure energy system by reducing United States' dependence on imported fuels and energy system vulnerability.

RPS Benefits

➢ **Diversity**
- Reduction of natural gas dependence, price volatility, and costs

➢ **Environment**
- NO_x reductions: greater than 230,000 tons by 2010
- CO_2 reductions: 59 million metric tons
- Reduced cost of implementing four pollutant legislation

➢ **Employment**
- More than $60 billion in economic development
- More than $1.2 billion in new income for farmers
- More than 80,000 new jobs

(Source: US DOE, Comprehensive Electricity Competition Act, Supporting Analysis, 1998; US DOE, Windpowering America Goals, June 1999; UCS, A Powerful Opportunity, 1999.)

Credit Trading

Tradable renewable energy credits can be utilized to add flexibility in fulfilling the RPS requirement, similar to acid rain regulations. In a RPS, credits can be issued to renewable energy generators for the power they generate from renewable energy resources. According to Nogee, having a system which verifies that retail electricity suppliers have obtained enough credits to meet designated requirements is necessary.

According to Nogee, there are three major advantages to credit trading: simplicity, flexibility and lower cost. Credit trading provides simplicity to the government agency that administers the program through issuing and counting credits as opposed to tracking complex electricity transactions. Credit trading provides flexibility in three ways: suppliers can build renewable energy technologies themselves, contract with independent generators, or buy credits from other suppliers with surpluses. Perhaps most importantly, according to Nogee, is the market mechanism for reducing the cost of the program. Credit trading fosters intense competition among all renewable energy generators to produce power at the lowest cost. Credit trading reduces transaction costs because retail electric suppliers do not have to negotiate individual contracts with dozens of small renewable energy generators; but simply buy the credits. Finally, credit trading allows utilities to buy the lowest cost credits anywhere in the United States. Nogee adds, credit trading "creates a very efficient, broad national market that reduces the cost of increasing renewable energy in our supply."

State Activities

Currently, 12 states have enacted a RPS or renewable "set aside." Each state's provisions are different, however, with varying renewable energy requirements, time frames and policy mechanisms. The Texas RPS contains capacity targets of 400 megawatts (MW) of new renewable energy by 2003, 850 MW by 2005, 1400 MW by 2007, and 2,000 MW by 2009 and through 2019. Since Texas enacted its RPS, renewable energy development, particularly wind power, has taken off and it is expected that the RPS targets will be met years ahead of schedule. Texas was the sixth state in the United States to adopt laws or rules instituting the Renewable Portfolio Standard. Texas has estimated that 900 MW of wind power will be installed in 2001. This represents more wind power capacity than the entire United States has previously installed in any two-year period.

According to Mike Sloan, president of Virtus Energy Research Associates, the Texas RPS is designed to produce as much renewable energy power as possible for as cheap as possible. Each wind machine powers 100-500 homes, and they are rurally located – generating $2,000 to $3,000 in additional income if they are located on private property. "They are a great rural economic development tool," says Sloan. Texas favors wind power over most other renewable energy resources because it is less expensive and has been the most successful, according to Sloan.

Nevada has the most aggressive RPS in the nation, states Peter Winokur, legislative fellow for Senator Harry Reid of Nevada. The Nevada RPS requires five percent of electricity generation to be derived from renewable energy sources by 2003 and grow to 15 percent over 10 years by 2013. The eligible technologies for Nevada's RPS include biomass, geothermal, solar, and wind, but not hydroelectric power. Nevada's RPS is estimated to stimulate $3 billion in new renewable energy investment in

"They [wind turbines] are a great rural economic development tool."
-Mike Sloan, Virtus Energy Research Associates, Inc.

the state over the next ten years. Nevada's goal is to reach 500 to 1,000 MW of new growth in renewable energy capacity by 2013. Most of Nevada's growth in renewable energy technology will be in geothermal and wind.

Under Nevada's RPS law, the contracts for renewable energy generation must be ten years or more. In addition to the RPS, according to Winokur, this requirement provides some security in the future and stability in the marketplace. Senator Harry Reid's office also believes that production tax credits are important for providing a market for those renewable energy sources.

Federal Legislation

The most recent RPS proposal by Chairman Bingaman and Majority Leader Daschle can be found in their Energy Policy Act of 2002 (S. 1766). They propose an RPS that requires an increase in electricity generated from new renewable energy sources of less than 2.5 percent for 2003 to 2004, 2.5 percent for 2005, and a half percent increase each year until 2020 (10 percent by 2020). Their proposal includes a trading system for renewable energy credits. The eligible technologies include solar, wind, geothermal, biomass, ocean, incremental hydropower, and generation offset.

Jeffords' proposal for a federal RPS, which is included in his bill (S.1333), also includes renewable energy credit trading. However, Jeffords' RPS contains a more expansive standard than the Energy Policy Act of 2002 – ten percent of electricity generation by 2010 and 20 percent by 2020. The eligible renewable energy technologies include wind, biomass, landfill gas, geothermal, solar thermal, and photovoltaics.

CONCLUSION

Barriers exist in developing renewable energy resources and encouraging energy efficiency in the market place. There is enormous market inertia that slows customers from switching their power suppliers, and uncertain market rules make it difficult for new manufacturers to enter the field. As the nation's electric system continues to be reformed in an effort to capture the benefits of competition, the Renewable Portfolio Standard and System Benefits Fund can enhance public benefits while also encouraging investment in new renewable energy sources and energy efficiency technologies. By investing in renewable energy sources, the nation's domestic energy resources are diversified, creating stability in an often-volatile marketplace influenced by a variety of competing factors, both internationally and nationally. A RPS and SBF are designed to insulate the United States from these instabilities, level the energy playing field, and encourage new investments in renewable energy and energy efficiency technologies – thereby improving the reliability of the electricity system, enhancing national energy security, decreasing pollution and promoting U.S. economic growth and development in rural communities.

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